

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

OCT 17 2001

Colonel James G. May  
District Engineer  
U.S. Army Corps of Engineers  
Jacksonville District  
P.O. Box 4970  
Jacksonville, FL 32232-0019

Dear Colonel May:

This letter is in regard to the Corps of Engineers June 6, 2001, request to modify the Fernandina Ocean Dredged Material Disposal Site (ODMDS) Site Management and Monitoring Plan (SMMP) by increasing the disposal zone from a 3,000 foot radius centered at the center of the ODMDS to a rectangle 1,500 feet within the ODMDS boundaries. Based on this request, we developed draft revised language for the SMMP section, *Disposal Location*. Additionally, we developed draft revised language to update the section, *Dredged Material Suitability*, to include guidance on performing water quality compliance assessments. Copies of the proposed changes were provided for review to interagency team members who participated in development of the SMMP, including the State of Florida Department of Environmental Protection, the Florida Fish and Wildlife Conservation Commission, the U.S. Coast Guard, the U.S. Navy and the Port of Fernandina. Additionally, in accordance with the Marine Protection Research and Sanctuaries Act (MPRSA), the proposed changes underwent a 30 day public review through publication of a Notice of Availability in the September 5th, 2001, issue of the *Fernandina News Leader*.

Based on our evaluation of the impacts of an increased disposal zone and the comments received on the proposed changes, we concur with your request to increase the size of the disposal zone. The enclosed document containing the changes will serve as an addendum to the existing SMMP and supercede the corresponding sections. These changes need to be incorporated into the permit conditions for MPRSA Section 103 permits and into the contract language for federal projects for ocean disposal in the Fernandina ODMDS. If you have any questions regarding use of the Fernandina ODMDS, please contact Mr. Chris McArthur at (404) 562-9391.

Sincerely,

A handwritten signature in dark ink, appearing to read "Beverly H. Banister".

Beverly H. Banister, Director  
Water Management Division

Enclosure

FERNANDINA OCEAN DREDGED MATERIAL DISPOSAL SITE

## SITE MANAGEMENT AND MONITORING PLAN

ADDENDUM #1

OCTOBER 2001

Disposal Location. Disposal shall occur no less than 1,500 feet inside the site boundaries. This buffer is defined by the following coordinates (multiple datums and coordinate systems are provided for completeness):

Geographic (NAD 27) <sup>1</sup>		State Plane (Florida East Zone - NAD 83)	
Latitude	Longitude	Y	X
30°32'45"	81°18'51"	2258681	557361
30°32'45"	81°17'09"	2258657	566219
30°31'15"	81°17'09"	2249531	566197
30°31'15"	81°18'51"	2249555	557336

Geographic (NAD 83) <sup>2</sup>		State Plane (Georgia East Zone - NAD 83) <sup>3</sup>	
Latitude	Longitude	Y	X
30°32'46"	81°18'50"	199621	924609
30°32'46"	81°17'09"	199689	933467
30°31'16"	81°17'09"	190564	933539
30°31'16"	81°18'50"	190496	924679

<sup>1</sup> The Fernandina ODMDS Site Designation (40 CFR §228.15(h)(8) ) utilizes the North Atlantic Datum of 1927 (NAD 27).

<sup>2</sup> GPS is referenced to the World Geodetic System 1984 (WGS 84) and ninety-nine percent of NOAA nautical charts are on the North American Datum of 1983 which, for charting purposes, is considered equivalent to WGS 84.

<sup>3</sup> Surveys conducted for the Kings Bay Entrance Channel dredging are typically performed using the Georgia East Zone coordinate system

Modeling efforts have shown that this buffer will contain the initial disposal mound within the site boundaries for projects up to 950,000 cubic yards (EPA, 1998). Projects greater than 950,000 are not expected, however, if proposed, modeling will be required to determine an appropriate buffer to contain the initial disposal mound within the ODMDS boundaries.

Placement methods which prevent mounding of dredged materials from becoming an unacceptable navigation hazard will be used. Dredged material shall be placed so that at no point will depths less than -25 feet Mean Lower Low Water (m.l.l.w.) occur (i.e., a clearance of 25 feet above the bottom will be maintained). To maximize the ODMDS capacity and minimize mounding of material, the dumps shall be scattered throughout specified disposal zones and not place repeatedly at one location. When necessary, the Corps of Engineers in consultation with EPA Region 4 will specify zones with the ODMDS for dredged material from each specific ocean dumping activity. Depths at the time of disposal will be monitored to detect if adjustments of disposal methods is needed to prevent unacceptable mounding

Material Suitability. Bottom sediments differ little through the length of this project. Material from the project areas are described as follows: 1) Fernandina Harbor Inner Channel & Turning Basin--predominantly gray slightly silty fine sand and gray silty fine sand; 2) Kings Bay Entrance Channel--predominantly dark brown and brown/gray slightly silty fine brown sand with some shells.

The disposition of any significant quantities of beach compatible sand from future projects will be determined during permitting activities for any such projects. It is expected that the State of Florida will exercise its authority and responsibility, regarding beach nourishment, to the full extent during any future permitting activities. Utilization of any significant quantities of beach compatible dredged material for beach nourishment is strongly encouraged and supported by EPA. Disposal of non-beach quality sand should be planned to allow the material to be placed so that it will be within or accessible to the sand-sharing system, to the maximum extent practical, and following the provisions of the Clean Water Act. Disposal of coarser material, such as rubble, should be coordinated with the State of Florida and EPA to avoid unintended impacts in the ODMDS and to promote possible beneficial uses of the material.

In addition, the suitability of dredged material for ocean disposal must be verified by the COE and agreed to by EPA prior to disposal. Verification will be valid for three years from the time last verified. Verification will involve: 1) a case-specific evaluation against the exclusion criteria (40 CFR 227.13(b)), 2) a determination of the necessity for bioassay (toxicity and bioaccumulation) testing for non-excluded material based on the potential for contamination of the sediment since last tested, and 3) carrying out the testing (where needed) and determining that the non-excluded, tested material is suitable for ocean disposal.

Documentation of verification will be completed prior to use of the site. Documentation will be in the form of a MPRSA Section 103 Evaluation following the format provided in Appendix B of the 1993 Regional Implementation Manual. Testing procedures to be used will be those delineated in the 1991 EPA/COE Dredged Material Testing Manual and 1993 Regional Implementation Manual. This includes how dredging operations will be subdivided into project segments for sampling and analysis. Water Quality Compliance determinations will be made using the STFATE (ADDAMS) model and the input parameters provided in Appendix A. Only material determined to be suitable through the verification process by the COE and EPA will be placed at the Fernandina ODMDS.

## APPENDIX A

### WATER COLUMN EVALUATIONS NUMERICAL MODEL (STFATE) INPUT PARAMETERS

Water Column Evaluations  
Numerical Model (STFATE) Input Parameters  
Fernandina Beach ODMDS

**SITE DESCRIPTION**

<b>Parameter</b>	<b>Value</b>	<b>Units</b>
Number of Grid Points (left to right)	45	
Number of Grid Points (top to bottom)	45	
Spacing Between Grid Points (left to right)	350	ft
Spacing Between Grid Points (top to bottom)	350	ft
Constant Water Depth	50	ft
Roughness Height at Bottom of Disposal Site	.005 <sup>1</sup>	ft
Slope of Bottom in X-Direction	0	Deg.
Slope of Bottom in Z-Direction	0	Deg.
Number of Points in Ambient Density Profile Point	2	
Ambient Density at Depth = 0 ft	1.0190	g/cc
Ambient Density at Depth = 50 ft	1.0250	g/cc

**AMBIENT VELOCITY DATA**

<b>Parameter</b>	<b>Value</b>	<b>Units</b>
Water Depth	50	ft
Profile	Logarithmic	
Vertically Averaged X-Direction Velocity	-0.33	ft/sec
Vertically Averaged Z-Direction Velocity	0.00	ft/sec

**DISPOSAL OPERATION DATA**

<b>Parameter</b>	<b>Value</b>	<b>Units</b>
Location of Disposal Point from Top of Grid	7,875	ft
Location of Disposal Point from Left Edge of Grid	7,875	ft
Dumping Over Depression	0	

**INPUT, EXECUTION AND OUTPUT**

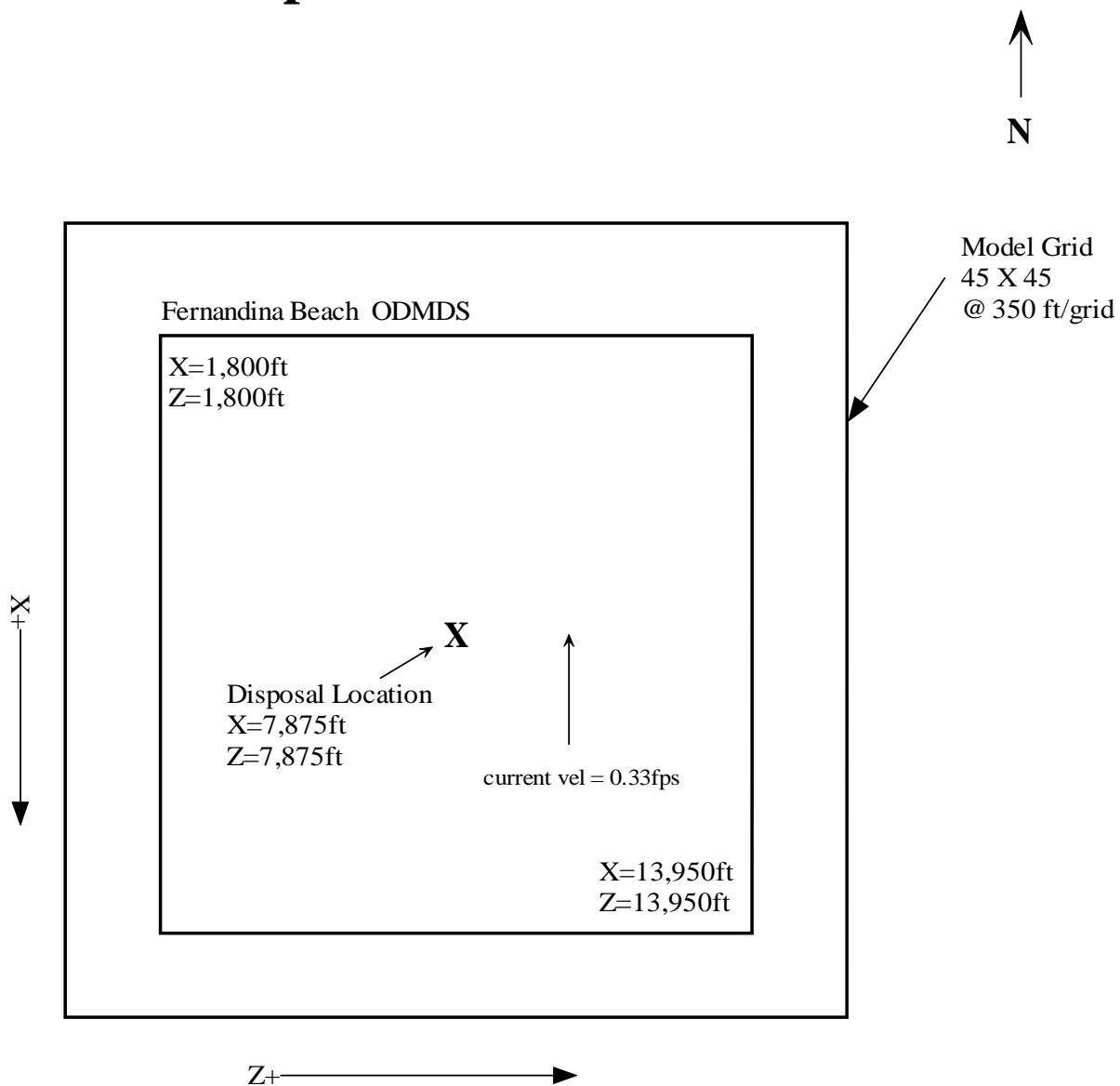
<b>Parameter</b>	<b>Value</b>	<b>Units</b>
Location of the Upper Left Corner of the Disposal Site - Distance from Top Edge	1,800	ft
Location of the Upper Left Corner of the Disposal Site - Distance from Left Edge	1,800	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Top Edge	13,950	ft
Location of the Lower Right Corner of the Disposal Site - Distance from Left Edge	13,950	ft
Duration of Simulation	14,400	sec
Long Term Time Step	600	sec

**COEFFICIENTS**

<b>Parameter</b>	<b>Keyword</b>	<b>Value</b>
Settling Coefficient	BETA	0.000 <sup>1</sup>
Apparent Mass Coefficient	CM	1.000 <sup>1</sup>
Drag Coefficient	CD	0.500 <sup>1</sup>
Form Drag for Collapsing Cloud	CDRAG	1.000 <sup>1</sup>
Skin Friction for Collapsing Cloud	CFRIC	0.010 <sup>1</sup>
Drag for an Ellipsoidal Wedge	CD3	0.100 <sup>1</sup>
Drag for a Plate	CD4	1.000 <sup>1</sup>
Friction Between Cloud and Bottom	FRICTN	0.010 <sup>1</sup>
4/3 Law Horizontal Diffusion Dissipation Factor	ALAMDA	0.0225 <sup>2</sup>
Unstratified Water Vertical Diffusion Coefficient	AKYO	Pritchard Expression
Cloud/Ambient Density Gradient Ratio	GAMA	0.250 <sup>1</sup>
Turbulent Thermal Entrainment	ALPHAO	0.235 <sup>1</sup>
Entrainment in Collapse	ALPHAC	0.100 <sup>1</sup>
Stripping Factor	CSTRIP	0.003 <sup>1</sup>

<sup>1</sup>Model Default Value<sup>2</sup>Calculated from NOAA Field Work at Fort Pierce, FL (1994)

# Fernandina Beach ODMDS STFATE Input Parameters





DEPARTMENT OF THE ARMY  
JACKSONVILLE DISTRICT CORPS OF ENGINEERS  
P. O. BOX 4970  
JACKSONVILLE, FLORIDA 32232-0019  
June 6, 2001

REPLY TO  
ATTENTION OF

Construction-Operations Division  
Navigation Section

Ms. Beverly H. Banister, Director  
Water Management Division  
Environmental Protection Agency  
Region 4, Atlanta Federal Center  
61 Forsyth Street  
Atlanta, Georgia 30303-8960

Dear Ms. Banister:

Reference is made to:


- a. Fernandina Harbor ODMDS - Site Management and Monitoring Plan (SMMP)

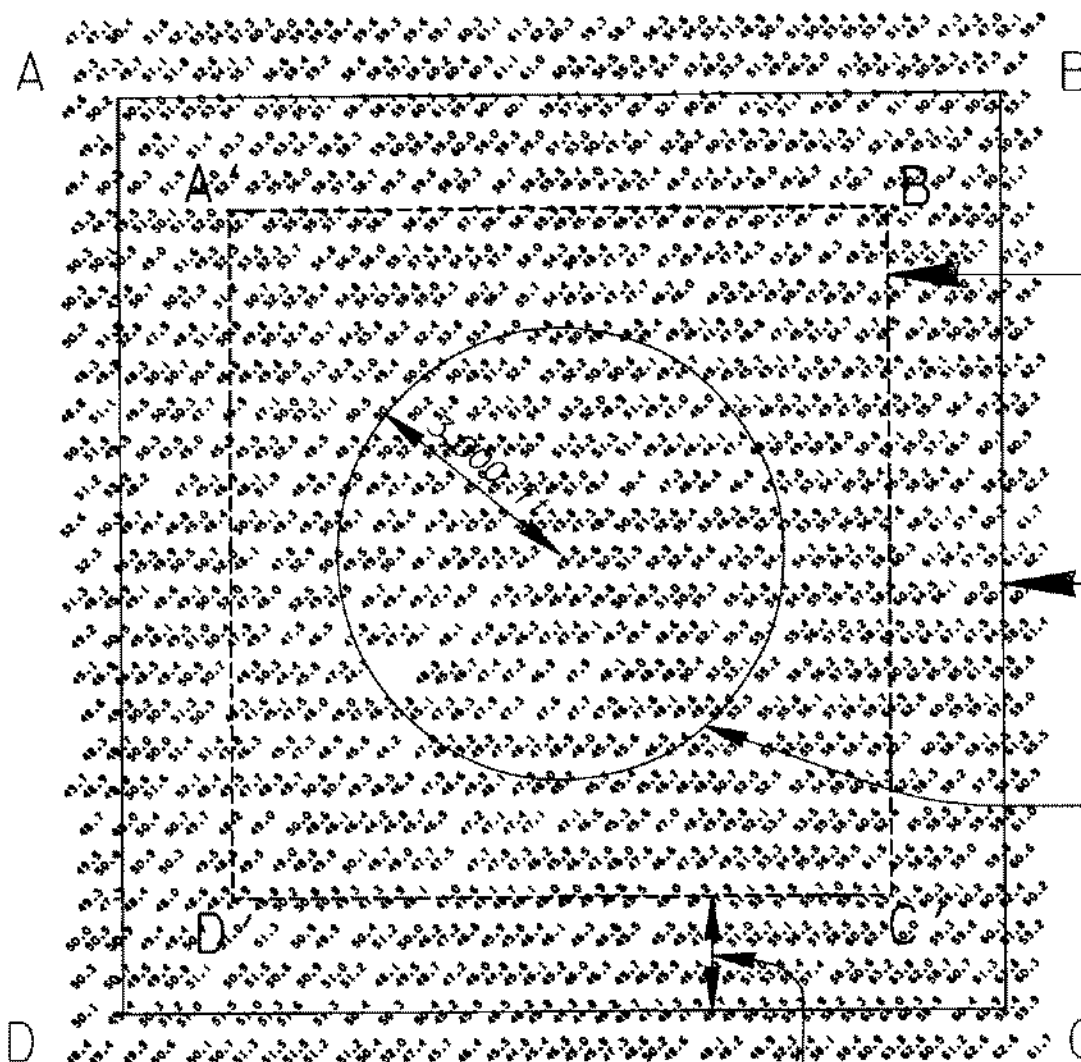
The U.S. Army Corps of Engineers requests EPA's concurrence to modify the referenced document. We wish to change the paragraph entitled, "Disposal Location." The paragraph currently specifies that disposal should occur within a radius of 3,000 feet of the center of the ODMDS. This region accounts for only 20% of the total ODMDS. We propose to enlarge the recommended disposal zone to approximately 56% of the ODMDS. Pending concurrence from EPA and other interested parties, the modified SMMP would state that during use of the ODMDS, dredged material will be placed at least 1,500 feet from ODMDS limits (see attached diagram).

The nature of the request is to prevent a potential navigation hazard caused by mounding of dredged material within the ODMDS. A larger disposal zone will allow a greater distribution of material, while still containing the dispersed material within the ODMDS. You may contact Mr. Brian Brodehl of my staff at 904-232-3600 for additional information.

Sincerely,

Enclosure

  
Richard E. Bonner, P.E.  
Deputy District Engineer  
For Project Management



# PROPOSED DISPOSAL ZONE

WORKING BOUNDARY CONTROL POINTS	PLANE COORDINATES	
	X	Y
POINT A'	924,609	199,621
POINT B'	933,467	199,689
POINT C'	933,539	190,564
POINT D'	924,679	190,496

GEORGIA EAST ZONE - NAD 83

SMMP BOUNDARY CONTROL POINTS	PLANE COORDINATES	
	X	Y
POINT A	923,098	201,109
POINT B	934,955	201,200
POINT C	935,051	189,076
POINT D	923,190	188,985

GEORGIA EAST ZONE - NAD 83

CURRENT 3,000 FT DISPOSAL ZONE  
20% OF ODMDS

1,500 FT  
(ALL SIDES)

D/A - 0 OCEAN  
DISPOSAL AREA